

**INSTITUTE FOR PLASMA RESEARCH**

An Aided institute of department of Atomic Energy, Govt. of India)  
Near Indira Bridge, Bhat. DIST.GANDHINAGAR - 382 428 (INDIA)  
PHONE :(079-2396 2000),FAX :91-079-23962277  
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**MINOR FABRICATION WORKS  
ENQUIRY**

Office Copy

ENQUIRY NO :IPR/MFW/21-22/103

Date : 02-07-2021

**Due Date : 19-07-2021 13:00 IST**

Please send your offer in sealed envelope specifying Inquiry No, Date & Due Date, ALONG WITH your credentials for the following items:

Important Note:

Please note that e-mail quotations are not acceptable however you may send your queries (if any) to **rachana@ipr.res.in**

Please Ensure that your sealed quotation reaches this office not later than above mentioned due date and time.

Kindly go through the following document properly before Quoting which are available on the IPR web portal i.e., <http://www.ipr.res.in/documents/tenders.html/> attached here with.

1. Technical specification as enclosed.
2. Instruction to the bidders & terms and Condition (refer Form NO:IPR-MFW-01-V1)
3. Bidding format(refer Biddingformat MFW-Bid.pdf)

GST fro Goods and Services (IGST/CGST/SGST TAX BENEFITS): PLEASE REFER clause no:8 of Form No:IPR-MFW-01-V1

QUOTATION SHOULD BE ADDRESSED TO **RACHANA RAJPAL** ONLY.

Sr.No.	Description	Quantity	Rate
1	To design and fabricate FPGA based hardware system	1	No.

**Free Issue Material**

Sr.No.	Description	Quantity	Unit	Value
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Note : Please quote with complete technical details (Technical Compliance sheet and product data sheet)

Encl:As per attachment

*Rachana*  
21/07/2021

Sd/-  
RACHANA RAJPAL  
Scientific Officer-G

# **Design and Fabrication of FPGA based processing system**

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## **1. SCOPE OF WORK**

To design and fabricate an FPGA based hardware system for high-speed numerical processing. The board should have Xilinx Kintex FPGA, multiple FPGAs have to be used to have total minimum 800K Logic Cells and internal clock speed of 200MHz or above.

There should be an interface port on the board to communicate with a PC via RS232 or USB, or Ethernet.

## **2. SCOPE OF SUPPLY**

**The scope of the work is divided in to the following tasks**

- 1> Design of Schematic circuit with following specification
- 2> Design of PCB with following specification
- 3> Procurement of components as per Schematic BoM.
- 4> PCB Fabrication and Assembly
- 5> Testing of the assembled board as per specification

## **3. Technical Specifications**

- a) Design and development of Schematic circuit which has Xilinx FPGAs with 800K logic cells, and associated power converters and configuration flash.
- b) All FPGAs should be independently programmable through JTAG interface. Provision to store bit files in flash has to be incorporated. The FPGA boot mode can be selected through suitable jumpers.
- c) If multiple FPGAs are used then 50 numbers of IOs to be interconnected among all the FPGAs, with 3.3V LVCMOS logic.
- d) Total 50 IOs to be taken out to the high reliability connectors for external world connections.
- e) The PCB has to be fabricated with FR4 glass epoxy material Immersion Gold/ENIG.
- f) There must be proper heat dissipation arrangements with Heat sink and/or cooling fans for running the FPGA with full resources used at 200MHz clock.
- g) PCB design should start after schematic is approved by IPR.
- h) PCB Fabrication should start after PCB design approval by IPR.
- i) PCB assembly must have to be done by supply automatic pick and place machine.
- j) The final assembled board has to be tested for programming of each FPGA with digital counter logic.
- k) There must be provision for 4 DIP switch to provide digital inputs and 4 LEDs to observe digital outputs.
- l) The maximum allowed dimension of PCB is 20cmx20cm. The board should be as compact as possible.
- m) The PCB must have appropriate support studs.

- n) The board must work with single input DC power with 9-12V. All required power rails to be generated by board itself. The DC-DC converters must respect the power on/off sequencing as recommended by Xilinx. The power handling capacity should be as per FPGA datasheet.
- o) The board must have clock sources of 33.33Mz, and the clock signal needs to be distributed to all FPGAs with 50 ohm controlled impedance.
- p) There should be an interface port on the board to communicate with a PC (RS232 or USB or Ethernet).

#### **4. Deliverables**

Sr. No.	Item Description	Quantity
1	Schematic circuit	1 set
2	PCB Design Files	1 Set
3	Assembled FPGA Board	1 piece
4	PCB Bare Board test report	1 Set
5	X-ray inspection report	1 set
6	JTAG Test report for programming	1 set

#### **5. Acceptance Criteria:**

1. The final assembled board has to be tested for programming of each FPGA with digital counter logic. Output is to be displayed on LEDs.
2. The board should be working for either of any communication interface (RS232 or Ethernet or USB interface).

#### **6. Terms and conditions:**

- The delivery period is within six months from date of IPR work order.
- Vendor can visit IPR for discussion to finalize schematic and PCB design.





**Form No: IPR-MFW-01.V1**

### **INSTRUCTIONS TO BIDDERS AND TERMS AND CONDITIONS**

1. The Quotation and any order resulting from this enquiry shall be governed by our Conditions of Work Order and Contractor quoting this enquiry shall be deemed to have read and understood the same completely.
  2. Where counter terms and conditions have been offered by the Tenderer, the same shall not be deemed to have been accepted by IPR unless our specific written acceptance thereof is obtained.
  3. **Quotation:** Quotation should be submitted in the prescribed QUOTATION FORMAT attached with this Enquiry and the same should be submitted in a sealed envelope super-scribing the same with our enquiry No., date, due date and brief description of item on or before the due date. Late/delayed/incomplete/unsigned quotations will not be considered. Envelopes received without Enquiry number, date, due date and brief description of item may be rejected. The quoted prices should be firm for a period of 90 days from due date for placing order. IPR is not bound to accept lowest rate/s. IPR reserves the right to place on one or more parties. The scope of supply includes insurance by the Contractor.
  4. **Specifications:** Goods should be offered strictly conforming to our specifications/drawings. Deviation, if any, should be clearly indicated by the contractor in their quotation. The Tenderer should also indicate the Make/Type number of the goods offered and catalogues, technical literature and samples, wherever necessary should accompany the quotation. Clarification/s on drawings should be obtained before submitting quotation.
  5. **Terms of Prices:** Quotation should be submitted on door delivery basis without extra charge wherever possible. For quotations on Ex-Works, Ex-godown basis the approximate packing and forwarding charges should be indicated by the contractor. In the case of local contractors, the goods are to be delivered at our stores free of charge.
  - 5.1 In respect of tenders on Ex-works basis, in case the tenderer has not mentioned in the offer packing, forwarding and transportation charges for safe delivery up to Purchaser's site, 2% of the price quoted towards packing (in respect of both local and outstation firms), 1% of the basic price quoted towards safe delivery charges in respect of local tenderer and 3% of the basic price quoted towards safe delivery charges in respect of outstation firm will be added for comparison of offers on safe door delivery at Purchaser's site.
  - 5.2 Prices are required to be quoted according to the units indicated in the tender form/Enquiry. When Quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished
  6. Tender should be free from Correction and Erasures. Corrections, if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail. Unsigned quotations will summarily be rejected. If there is a discrepancy between the unit price and total price, unit price shall prevail.
  7. IPR shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portion of the quantity offered and the tenderers shall supply the same at the rate quoted.
  8. **Goods & Services Tax (GST):** The details of Taxes/GST and other levies legally applicable and intended to be claimed should be clearly indicated in the tender. Where this is not done, no claim on these accounts would be admissible later.
    - a) **GST for Goods (IGST/CGST/SGST TAX BENEFITS):**  
IPR is entitled to avail tax benefit as per the following notifications issued by Ministry of Finance, Department of Revenue, Government of India:  
(1) No: 47/2017-INTEGRATED TAX (RATE) DATED 14/11/17 for IGST  
(2) No: 45/2017-CENTRAL TAX (RATE) DATED 14/11/17 for CGST  
And,  
IPR is entitled to avail tax benefit as per the following notifications issued by Finance Department, Government of Gujarat:  
(1) No. 45/2017-STATE TAX (RATE) DATED 15/11/17 for SGST  
As per above notifications IPR will bear only 5% IGST for procurement of goods from outside Gujarat & 2.5% CGST and 2.5% SGST (total 5%) for procurement of goods within Gujarat. Vendors are required to charge tax as per these notifications while quoting/supplying the goods. Deviations, (if any) should be clearly mentioned in the quotation/offer.
- Please specify the HSN codes while quoting.**
- b) **GST for Services:**  
As applicable. **Specify the SAC codes wherever services are involved.**
9. **Delivery Date:** Delivery period is essence of the Contract. Contractor must indicate the firm delivery date by which the goods will be dispatched or delivered by them from the date of our order. Delivery period shall be clearly indicated against each item separately.
10. **Price/ Purchase Preference:** Purchase/Price preference to industries will be given as per the policy of the Government of India in force at the time of evaluation provided their offer is in compliance with the conditions of the policy.



# प्लाज्मा अनुसंधान संस्थान

(भाट, इन्दौरा पुल के पास, गांधीनगर 382428 - , गुजरात)

## Institute for Plasma Research

Bhat, Near Indira Bridge, Gandhinagar – 382428, Gujarat (INDIA)



11. **Liquidated Damages:** The successful Vendor/Bidder should pay liquidated damages @ ½% (half percent) of the total work order value for the delay of each week in the scheduled date of completion of the work envisaged in the Work Order subject to a maximum of 5% (Five percent) of the total Work Order value.
12. **Inspection:** Goods on its arrival at IPR will be inspected by Stores, and his decision in the matter will be final. However, where the items are required to be inspected at the Contractors Premises, Contractor has to give advance notice regarding readiness of the Goods to enable us to depute our representative for inspection.
13. **Payment:** Payment will be arranged for accepted goods only within 30 days from the date of receipt of goods at IPR and bills in our accounts section, completed in all respects.
14. No correspondence will be entertained within 30 days from the date of receipt of good and bills, whichever is later.
15. **Guarantee:** The Stores offered should be guaranteed for a minimum period of twelve months, from that date of acceptance, against defective Goods, design, workmanship, operation or manufacture. For defects noticed and communicated during the Guarantee period, replacement/rectification should be arranged free of cost within a reasonable period of such notifications. In case where our specifications call for a guarantee period more than 12 months specifically, then such a period shall apply.
16. **Performance Bank Guarantee:** If demanded by IPR, the successful bidder will have to furnish Performance Bank Guarantee for 10% of the order value (basic price) from a Nationalized/Scheduled Bank/State Bank of India, valid throughout the Guarantee/Warranty period. The scheduled banks approved by IPR are Axis Bank, HDFC Bank, ICICI Bank and IDBI Bank. Bank Guarantees submitted other than from banks approved by IPR will not be accepted.
17. **Security Deposit:** If demanded the successful Bidder will have to furnish to the Purchaser an interest free security deposit for 10% (Ten percent) of the order value in the form of Bank Guarantee of an equivalent amount from a nationalized/ scheduled Bank/State Bank of India within 15 days from the date of work order and the said Guarantee should be valid till the goods are accepted by IPR. The scheduled banks approved by IPR are Axis Bank, HDFC Bank, ICICI Bank and IDBI Bank. Bank Guarantees submitted other than from banks approved by IPR will not be accepted. The Security deposit shall be forfeited in case the selected Bidder does not start the work within the time limit specified or fail to complete the work within the stipulated delivery period or fail to comply with any of the terms and conditions in the work order. On successful completion of scope of work and its acceptance by IPR, Contractor should send a letter requesting return of the original BG.
18. The Contractor shall at all times indemnify the purchase against all claims which may be made in respect of the stores for infringement of any right protected by Patent Registration of design or Trade Mark and shall take all risk of accidents or damage, which may cause failure of supply from whatever cause arising and the entire responsibility for sufficiency of all means used by him for the fulfilment of the contract.
19. **Free Issue Material (FIM):** Successful tenderer will have to arrange insurance showing beneficiary as "Institute for Plasma Research" at their risk and cost towards adequate security for the materials/property provided/issued by the Purchaser as Free Issue Material for the due execution of the contract.
20. The Director, IPR reserves the right to accept or reject any quotations fully or partly or to cancel the enquiry without assigning any reason.
21. **Jurisdiction:** The contract shall be governed by the Laws of India for the time being in force. The Courts of Gandhinagar only shall have jurisdiction to deal with and decide any legal or dispute arising out of this Contract.

(This need to be printed in Bidders letter head)

1. Please quote with complete technical details along with technical compliance sheet.
2. Quotation should be submitted in the format given below, else IPR shall not consider the offer by the vendor.

**NAME OF PARTY :**

**ENQUIRY NO:**

**QUOTATION No. & DATE :**

Currency of Quotation: **Indian Rupees**

Sr. No.	Item Description	HSN/SAC Code	Quantity	Unit Rate (Basic)	Packaging & forwarding (P&F)	Applicable GST	Rate (incl P&F and GST)	Total Value
1								
2								
3								
4								
5								
6								

Sr. No.	Particular	Remarks
I.	Ex-works / FOR Destination	
II.	Freight	
III.	Insurance	
IV.	Delivery Period	
V.	Payment (IPR terms will apply)	
VI.	Guarantee / Warrantee	
VII.	Validity Period	
VIII.	Discount (if any)	
IX.	Remarks	

Place: Authority Signatory

Date: Company Seal

**Note:**

1. Bidder should submit the copy of **GSTIN / ARN Certificate** along with the offer
2. Bidder should specify the **SUPPLY and SERVICE rates/ charges** separately wherever applicable